

First Record of the Nudibranch *Trapania brunnea* Rudman in New Zealand Waters with Comments on Intraspecific Variation in the Species

by

RICHARD C. WILLAN

Department of Zoology, University of Queensland, St Lucia,
Brisbane, Queensland, Australia 4067

Abstract. *Trapania brunnea* Rudman, 1987, is newly recorded from New Zealand on the basis of six specimens discovered together at the Poor Knights Islands off the Northland coast. The opportunity is taken to describe intraspecific variation as regards coloration of the body, foot, anterior foot extensions, rhinophores, gills, and lateral body processes in this distinctive species. *Trapania brunnea* is the eleventh nudibranch species to be recognized as possessing a natural trans-Tasman distribution.

The dorid nudibranch *Trapania rudmani* Miller was the first described, and hitherto supposedly only, member of its genus from New Zealand (MILLER, 1981; RUDMAN, 1987). It is certainly endemic to that country (WILLAN & COLEMAN, 1984; WILLAN & MORTON, 1984). On 12 May 1988, Dr. P. Chapman-Smith observed and photographed six specimens of a second *Trapania* species, *T. brunnea* Rudman, 1987, in 14 m in a recess on one of the walls of Barren Arch on the eastern side of Tawhiti Rahi, the largest island of the Poor Knights group off Northland's east coast. Two of Dr. Chapman-Smith's photographs are reproduced here (Figures 1, 2).

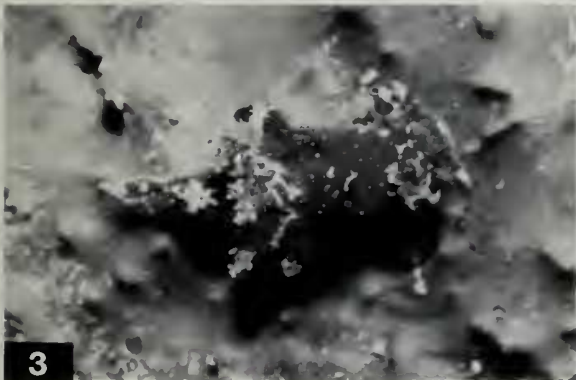
The New Zealand specimens ranged in size from 12 to 15 mm crawling length. Because the maximum length previously reported was 17 mm (RUDMAN, 1987), I assume all the New Zealand specimens were sexually mature.

All six specimens were together on one clump of the bulky, encrusting, white sponge *Cacospongia* sp. (Dictyoceratida: Thorectidae). Dr. Chapman-Smith noted that some of the *Trapania brunnea* appeared to be feeding on this sponge and that there was a spawn mass (visible on the right in Figure 2) on the sponge surface; this spawn could have been laid by one of the animals.

The New Zealand specimens were not collected, but because *Trapania brunnea* is distinctive and wide ranging in temperate Australian waters, positive identification is possible on the basis of the photographs alone. Actually the New Zealand specimens vary less in coloration from the original description than some eastern Australian animals I have examined. RUDMAN's (1987) description men-

tioned color variation in the amount of white pigmentation on the body and foot. However, it is apparent, both from the present New Zealand specimens and my Australian material, that variation also exists in coloration of the anterior foot extensions, rhinophores, gills, and lateral body processes. This intraspecific variation needs to be described to fully comprehend the species and to avoid disagreements over specific identifications as have happened with European *Trapania* species (e.g., PRUVOT-FOL, 1954; HAEFELFINGER, 1960; THOMPSON & BROWN, 1984). The following account of color variation encompasses the New Zealand specimens as well as two from eastern Australia, one each from northern New South Wales (Figures 3, 4) and southern Queensland (Figures 5-7).

The ground color is always uniform, dark chocolate brown, and there is a regular peppering of either numerous (Figures 3, 4) or sparse (Figures 5-7) white specks. A very irregular white streak extends the length of the body along the dorsal midline. This streak is usually present as a narrow line on the head, but it can be represented by a series of interrupted dashes (Figures 5-7), or merely a simple relatively small white patch (Figures 3, 4). The median streak stops at the level of the rhinophores where there is a prominent, relatively broad, white streak extending both anteriorly and posteriorly; sometimes the streaks from both sides coalesce in the midline to produce an H pattern. The median streak usually commences again over the pericardium at the level of the termination of the streaks extending posteriorly from the rhinophores (Figures 6, 7) but there can be considerable separation (Figures



Explanation of Figures 1 to 6

Figures 1, 2. *Trapania brunnea*; lengths 14 mm and 15 mm respectively. From 14 m, Tawhiti Rahi Island, Poor Knights Islands, Northland, New Zealand, 7 May 1988. Photographs: P. Chapman-Smith.

Figures 3, 4. *Trapania brunnea*; length 13 mm. From 21 m, Split

Solitary Island, northern New South Wales, Australia, September 1986. Photographs: C. Buchanan.

Figures 5, 6. *Trapania brunnea*; length 8 mm. From 2.5 m, Myora spit, Moreton Bay, southern Queensland, Australia, 2 March 1982. Photographs: R. C. Willan and J. C. Paterson respectively.

1, 2), or the median and lateral streaks may be absent altogether (Figures 3, 4). The median streak is widest and most irregular in shape behind the gills, even forming an elongate white blotch in some individuals (Figure 3). The tip of the tail is always white.

The foot has a thin, irregular, white marginal line that is expanded into a white blotch on either side in front of, and behind, the gills. The tentaculate anterior corners of

the foot have a brown proximal section, which is white spotted, and a translucent white distal section (Figures 5–7). The latter section may, however, be reduced to an apical white spot (Figure 1) as occurs on the oral tentacles.

The rhinophores have a translucent white stalk and chocolate (Figures 1–4) or translucent white (Figure 5) clavus with white spots on the lamellae. The apex of the rhinophores is white.

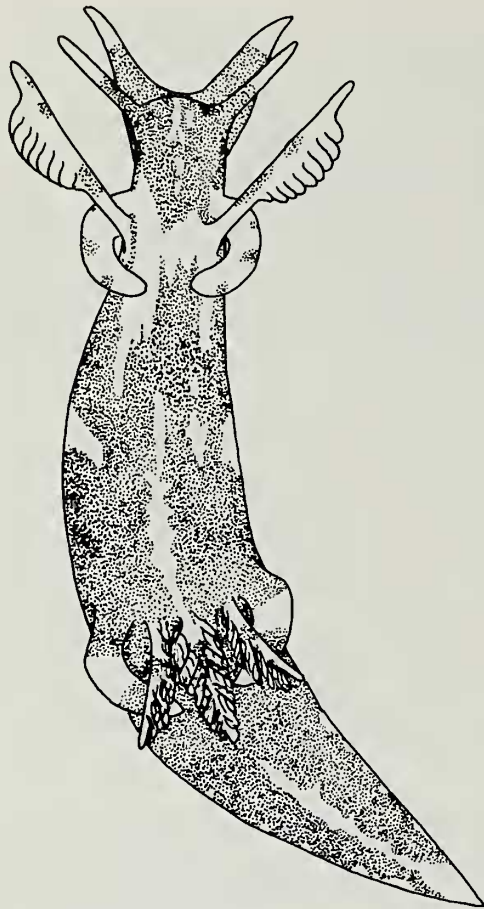


Figure 7

Trapania brunnea; length 8 mm. From 2.5 m, Myora spit, Moreton Bay, southern Queensland, Australia, 2 March 1982. Specimen drawn from life by the author.

The axes and pinnules of the gills are either translucent brown (Figures 1-4) or translucent white (Figures 5-7) with white specks similar to those on the body.

The lateral extra-rhinophoral and extra-branchial appendages have, successively, a brown base, irregular translucent white central section, brown distal section, and white apex. Both brown sections are peppered with white specks. The brown distal section can be reduced to a blotch, but I have never seen a specimen in which it could be described as a median band as was indicated in the original description.

Trapania brunnea was previously reported from South Australia, Tasmania, Victoria, central New South Wales, and Lord Howe Island (RUDMAN, 1987), and I have Australian material from northern New South Wales (Figures 3, 4) and southern Queensland (Figures 5-7). The oc-

currence of *T. brunnea* in northeastern New Zealand is significant biogeographically because it represents another nudibranch with a trans-Tasman distribution, *i.e.*, a species common to temperate Australia and northern New Zealand waters and not naturally occurring elsewhere. The other examples I know of are *Plocamophorus imperialis* Angas, *Tambja verconis* (Basedow & Hedley), *Okenia pelucida* Burn, *Archidoris wellingtonensis* (Abraham), *Doriopsis flabellifera* (Cheeseman), *Chromodoris amoena* Cheeseman, *Dermatobranchus pulcherrimus* Miller & Willan, *Tularia bractea* (Burn), *Spurilla australis* Rudman, and *Aeolidia helicochorda* Miller. Such shared species constitute approximately 7% of New Zealand's and 3% of temperate eastern Australia's total nudibranch fauna. I interpret the higher percentage for New Zealand as a result of that country's insularity, geographical isolation, relatively small area, and generally colder waters. In all probability there are some additional unrecognized trans-Tasman nudibranch species, but their detection will be hampered by their small size and the inadequate knowledge of the eastern Australian fauna.

ACKNOWLEDGMENTS

Had Dr. P. Chapman-Smith not shown me his slides, the presence of *Trapania brunnea* in New Zealand would have gone unrecognized. I am sincerely grateful to him, to Mrs. C. Buchanan and Mr. J. Paterson for allowing me to reproduce their original photographs of *T. brunnea* in this paper. In kindly identifying the sponge, Dr. C. Battershill commented that it was an undescribed species that he had only seen at the back of submarine caves.

LITERATURE CITED

- HAEFELFINGER, H. R. 1960. Neue und wenig bekannte opisthobranchier der gattung *Trapania* und *Caloria* aus der bucht von Villefranche-sur-Mer. *Revue Suisse Zool.* 67:226-238.
- MILLER, M. C. 1981. *Trapania rudmani*, a new dorid nudibranch (Gastropoda: Opisthobranchia) from New Zealand. *N.Z. Jour. Zool.* 8:5-9.
- PRUVOT-FOL, A. 1954. *Faune de France 58 Mollusques Opisthobranches*. Paul LeChevalier: Paris. 460 pp.
- RUDMAN, W. B. 1987. The genus *Trapania* (Nudibranchia: Goniodorididae) in the Indo-west Pacific. *Jour. Moll. Stud.* 53:189-212.
- THOMPSON, T. E. & G. H. BROWN. 1984. *Biology of opisthobranch molluscs. Volume II*. The Ray Society: London. 229 pp.
- WILLAN, R. C. & N. COLEMAN. 1984. *Nudibranchs of Australasia*. Australasian Marine Photographic Index: Sydney. 56 pp.
- WILLAN, R. C. & J. E. MORTON. 1984. *Marine molluscs. Part 2. Opisthobranchia*. Leigh Marine Laboratory, University of Auckland, Auckland. 106 pp.